

## **CHAPTER 2**

### **DESCRIPTION OF THE LOOSAHATCHIE RIVER WATERSHED**

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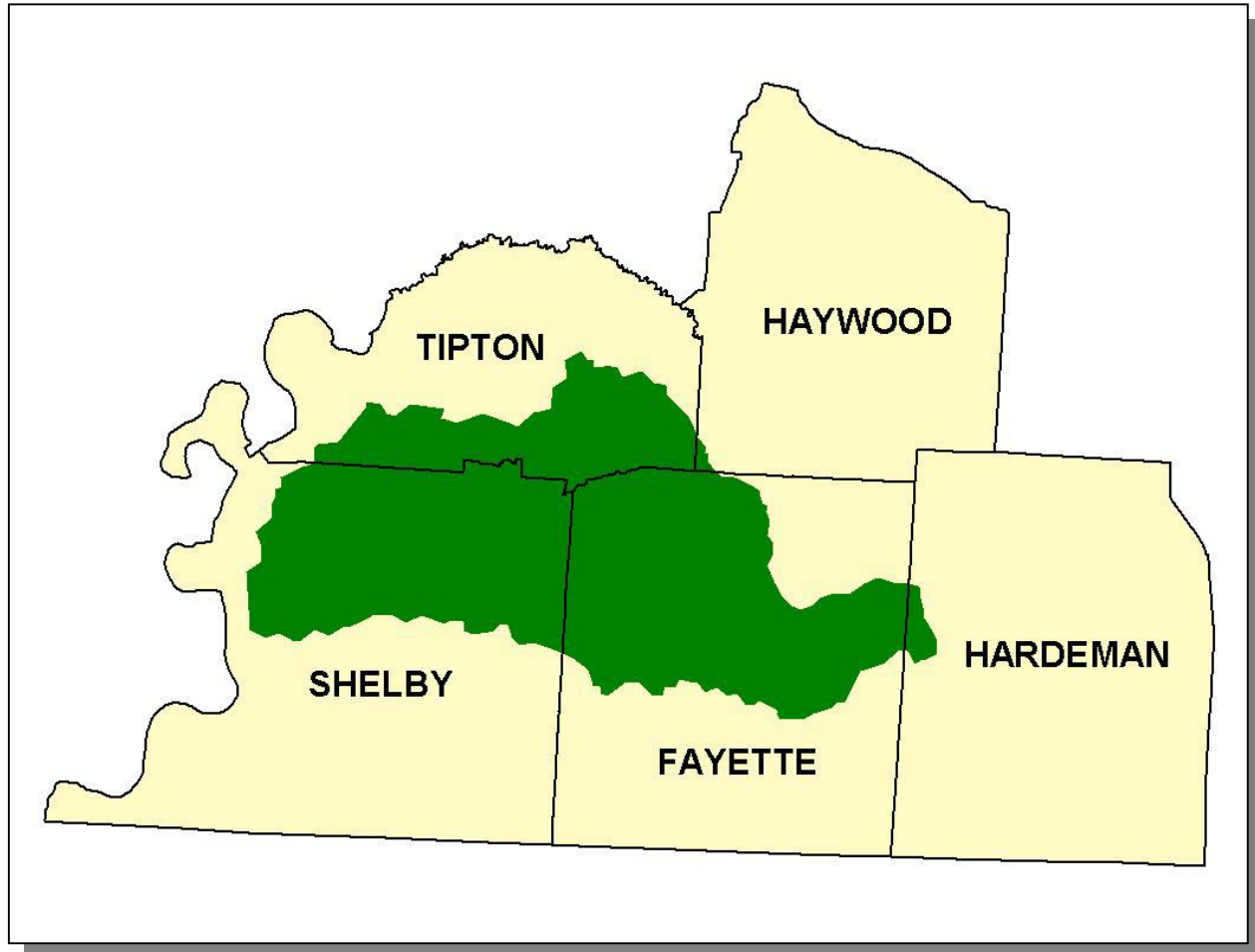
**2.1. BACKGROUND.** “Hatchie” is a Native American word meaning “river”. The Loosahatchie River was recognized as a dark river flowing through a swamp.

The Loosahatchie River watershed streams have increased gradient, generally sandy substrates, and distinctive faunal characteristics for west Tennessee. Smaller streams of the Bluff Hills have localized reaches of increased gradient and small areas of gravel substrate that create aquatic habitats that are distinct from those to the east. Unique, isolated fish assemblages more typical of upland habitats can be found in these stream reaches. The river system has wide floodplains and many streams have been channelized.

This Chapter describes the location and characteristics of the Loosahatchie River Watershed.

## 2.2. DESCRIPTION OF THE WATERSHED.

**2.2.A. General Location.** The Loosahatchie River Watershed is located in West Tennessee and includes parts of Fayette, Hardeman, Haywood, Shelby, and Tipton Counties.

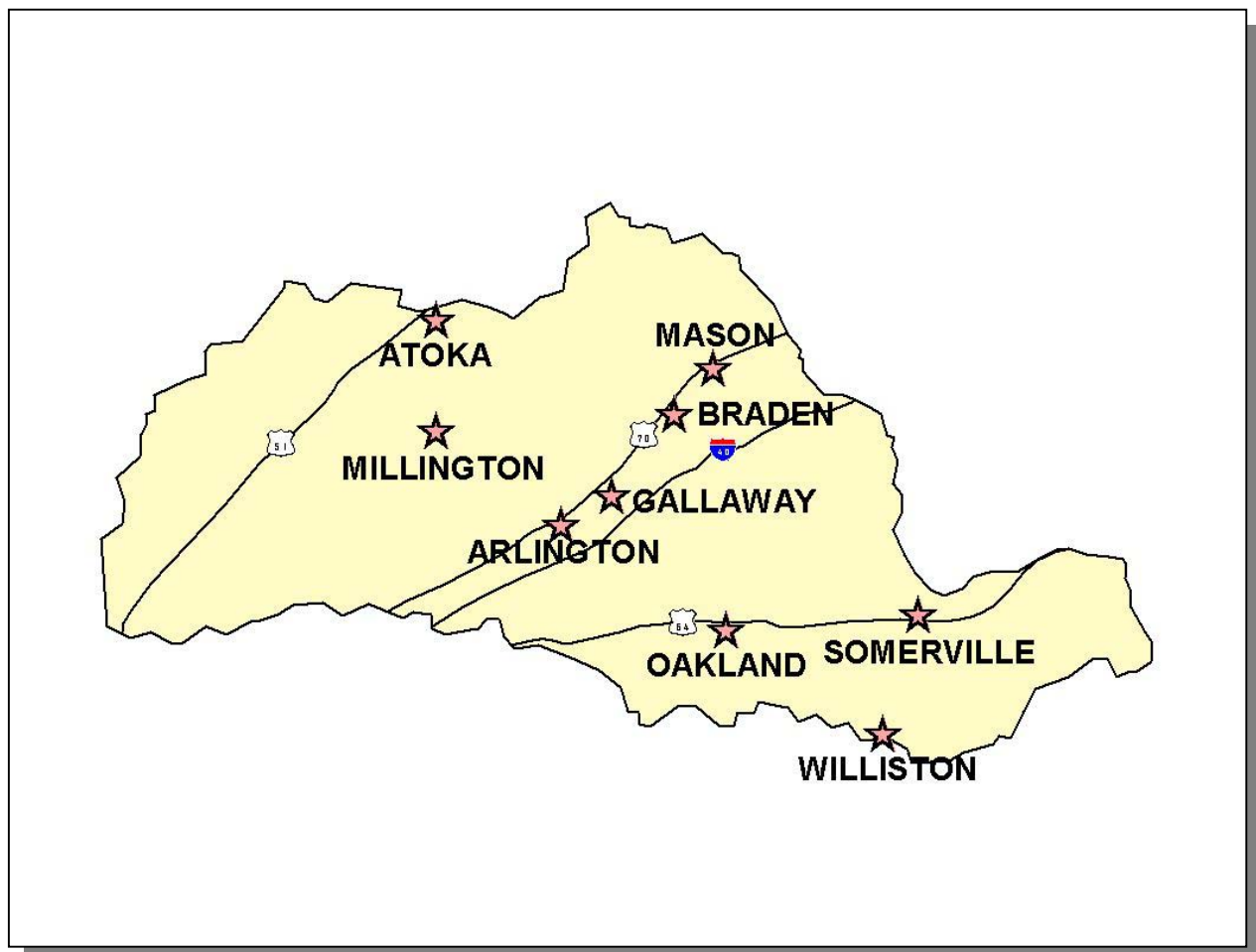


*Figure 2-1. General Location of the Loosahatchie River Watershed.*

COUNTY	% OF WATERSHED IN EACH COUNTY
Fayette	40.9
Shelby	39.1
Tipton	18.6
Hardeman	1.1
Haywood	0.3

*Table 2-1. The Loosahatchie River Watershed Includes Parts of Five West Tennessee Counties.*

**2.2.B. Population Density Centers.** One interstate (I-40) and three state highways serve the major communities in the Loosahatchie River Watershed.



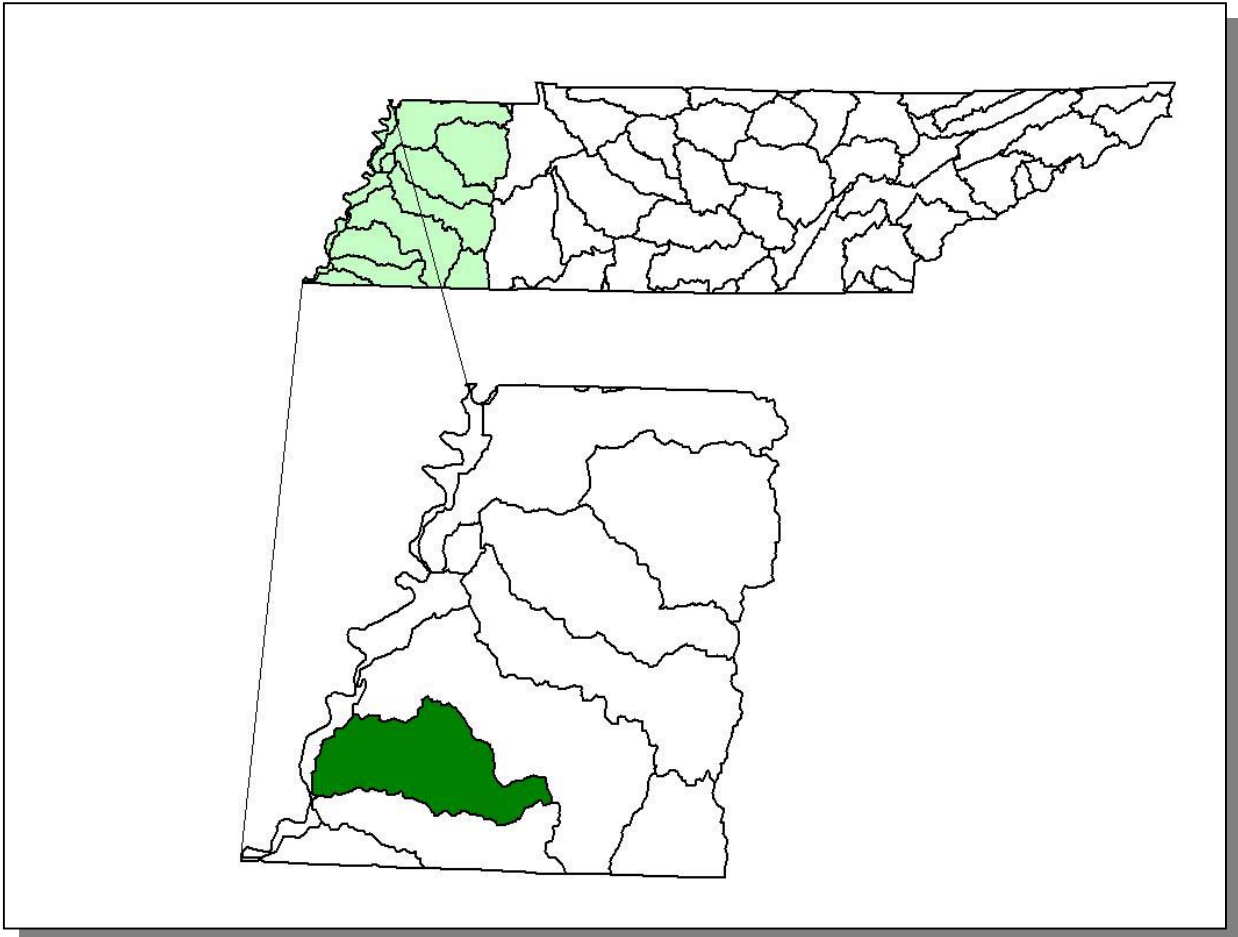
**Figure 2-2. Municipalities and Roads in the Loosahatchie River Watershed.**

MUNICIPALITY	POPULATION	COUNTY
Atoka	2,099	Tipton
Arlington	1,414	Shelby
Braden	335	Fayette
Gallaway	841	Fayette
Mason	329	Tipton
Millington	18,142	Shelby
Oakland	428	Fayette
Somerville*	1,881	Fayette
Williston	403	Fayette

**Table 2-2. Municipalities in the Loosahatchie River Watershed.** Population based on 1996 census (Tennessee Blue Book). Asterisk (\*) indicates county seat.

## 2.3. GENERAL HYDROLOGIC DESCRIPTION.

**2.3.A. Hydrology.** The Loosahatchie River Watershed, designated the Hydrologic Unit Code 08010209 by the USGS, is approximately 738 square miles and drains to the Mississippi River.

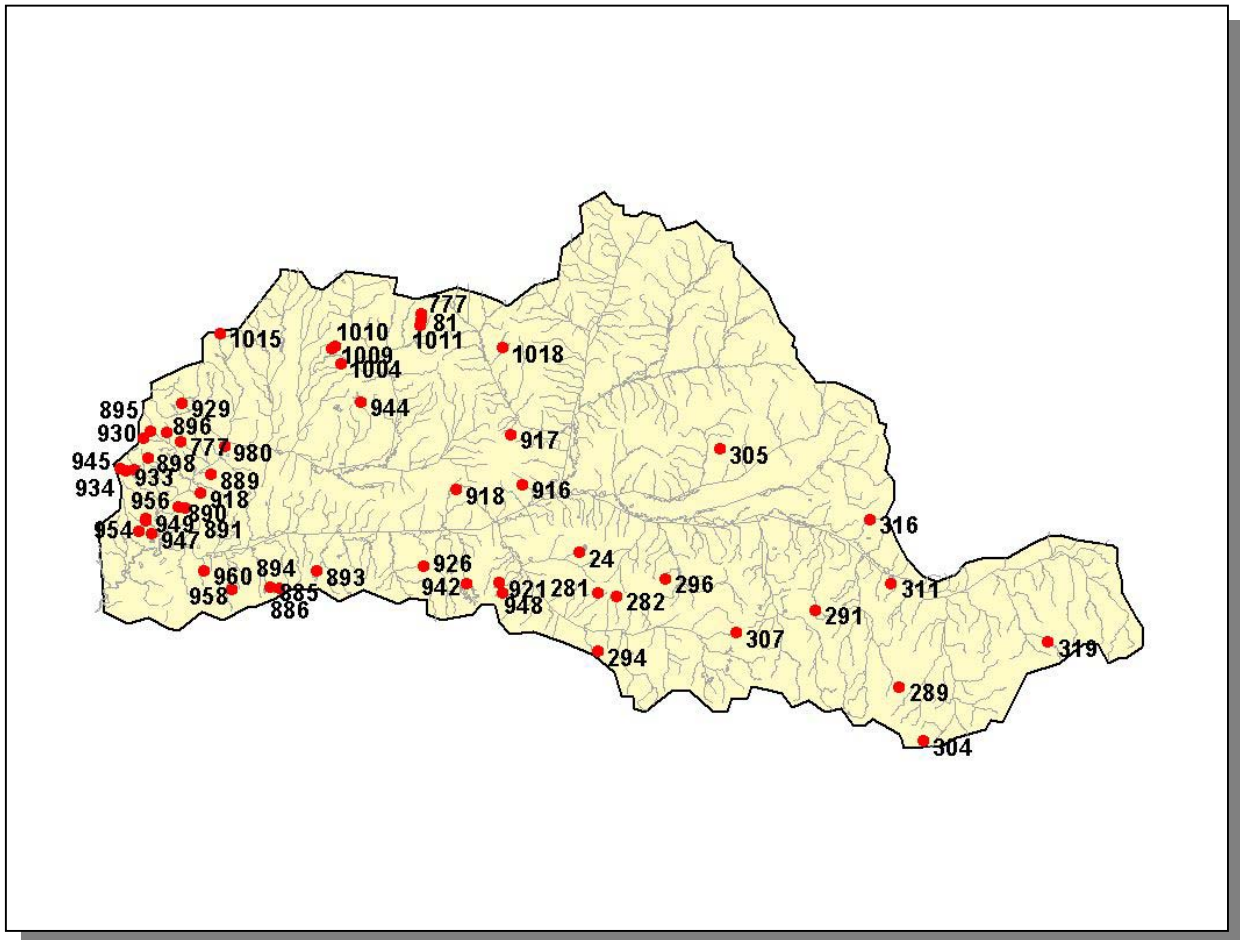


*Figure 2-3. The Loosahatchie River Watershed is Part of the Mississippi River Basin.*



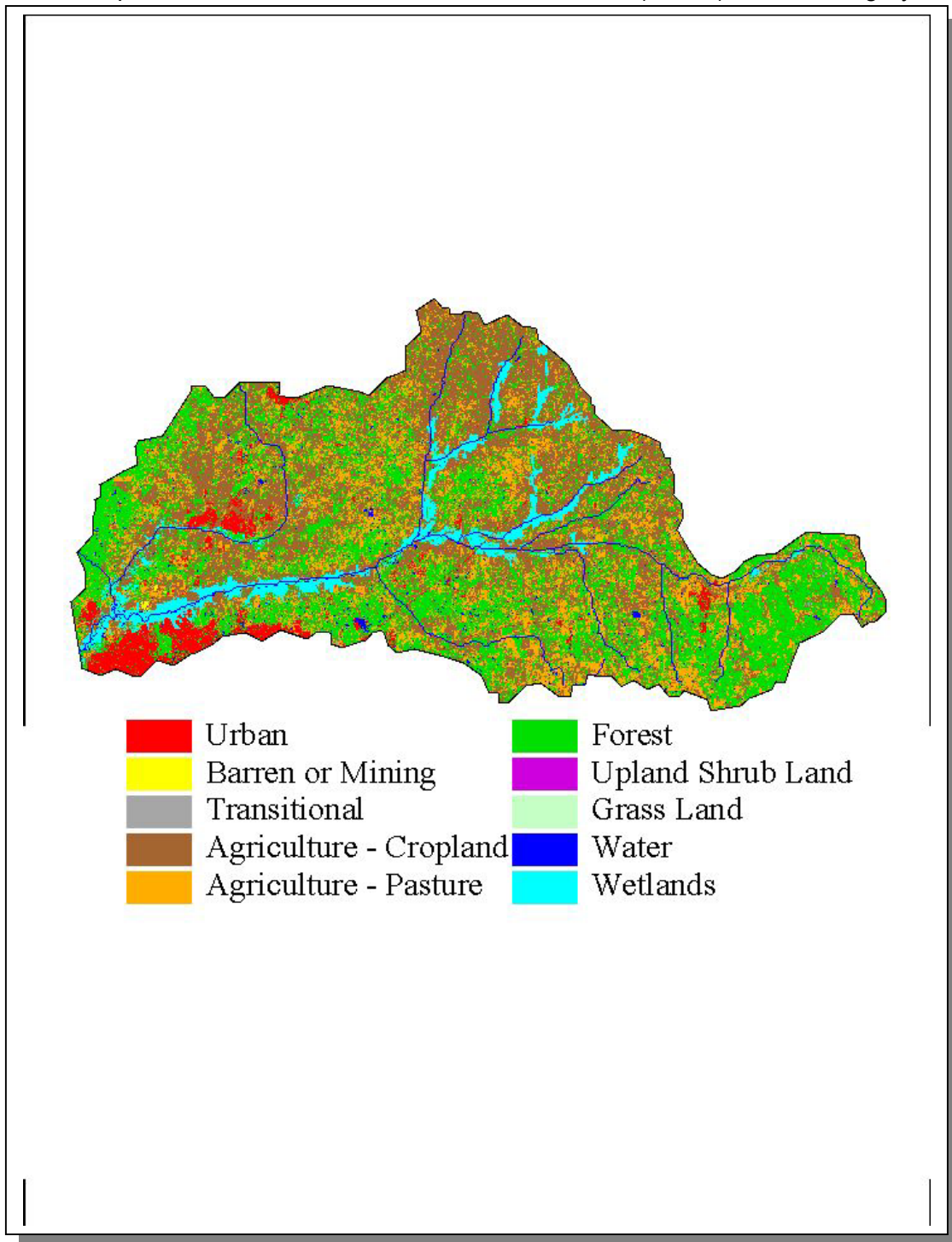
**Figure 2-4. Hydrology in the Loosahatchie River Watershed.** There are 1,443 stream miles and 81 lake acres recorded in River Reach File 3 in the Loosahatchie River Watershed. Locations of Loosahatchie River and the cities of Mason, Millington, and Somerville are shown for reference.

**2.3.B. Dams.** There are 53 dams inventoried by TDEC Division of Water Supply in the Loosahatchie River Watershed. These dams either retain 30 acre-feet of water or have structures at least 20 feet high.

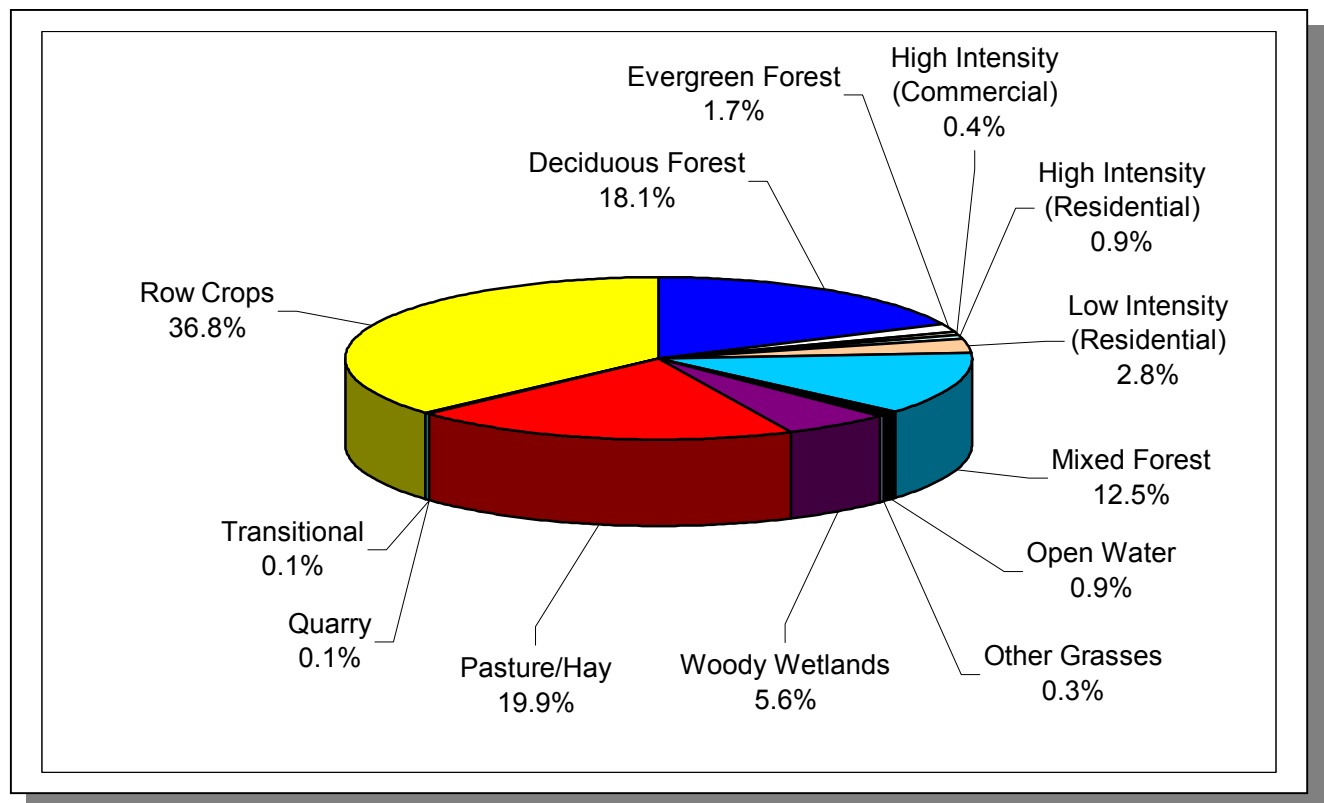


**Figure 2-5. Location of Inventoried Dams in the Loosahatchie River Watershed.** More information is provided in Loosahatchie-Appendix II and on the TDEC homepage at: <http://gwidc.gwi.memphis.edu/website/dams/viewer.htm>

**2.4. LAND USE.** Land Use/Land Cover information was provided by EPA Region 4 and was interpreted from 1992 Multi-Resolution Land Cover (MRLC) satellite imagery.



*Figure 2-6. Illustration of Select Land Cover/Land Use Data from MRLC Satellite Imagery.*



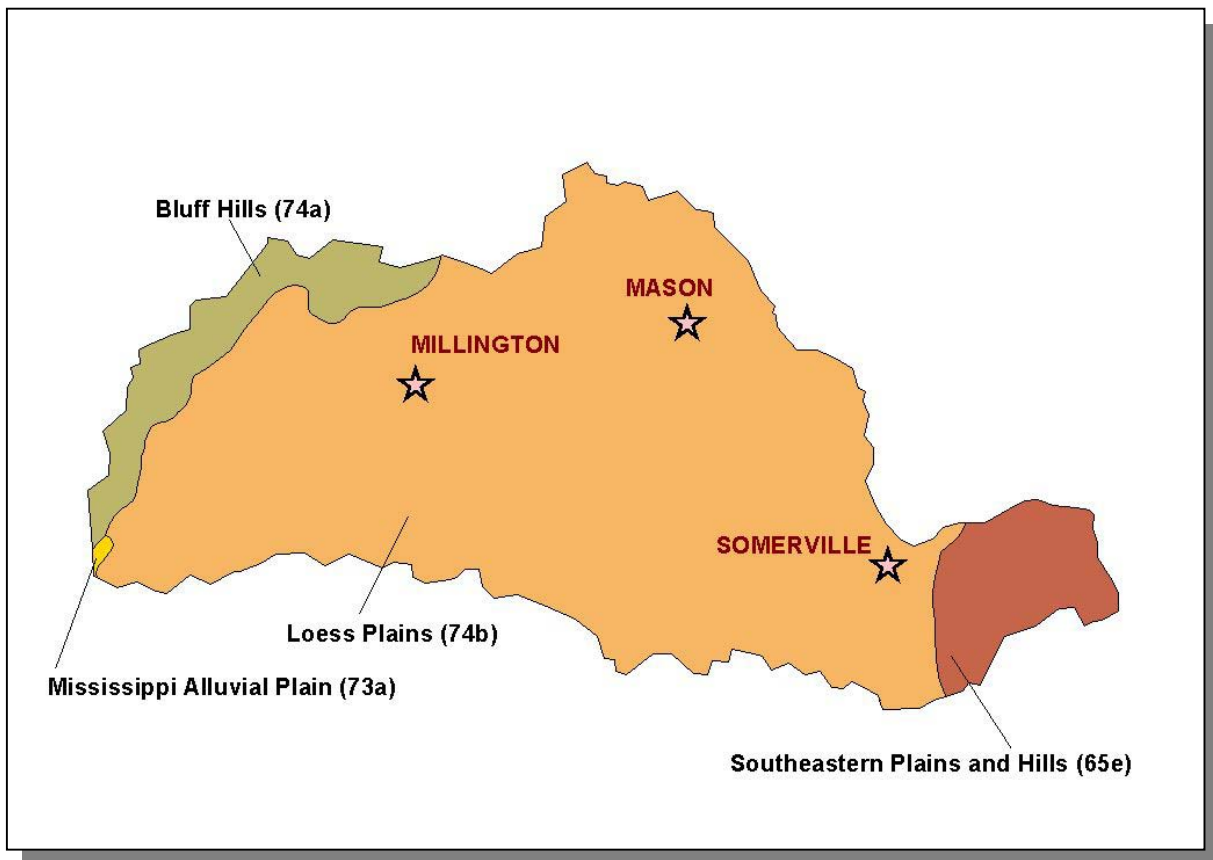
**Figure 2-7. Land Use Distribution in the Loosahatchie River Watershed.** More information is provided in Loosahatchie-Appendix II.

**2.5. ECOREGIONS AND REFERENCE STREAMS.** Ecoregions are defined as relatively homogeneous areas of similar geography, topography, climate and soils that support similar plant and animal life. Ecoregions serve as a spatial framework for the assessment, management, and monitoring of ecosystems and ecosystem components. Ecoregion studies include the selection of regional stream reference sites, identifying high quality waters, and developing ecoregion-specific chemical and biological water quality criteria.

There are eight Level III Ecoregions and twenty-five Level IV subcoregions in Tennessee. The Loosahatchie River Watershed lies within 3 Level III ecoregion (Southeastern Plains, Mississippi Alluvial Plain, and Mississippi Valley Loess Plains) and contains 4 Level IV subcoregions (Griffen, Omernik, Azavedo, 1997):

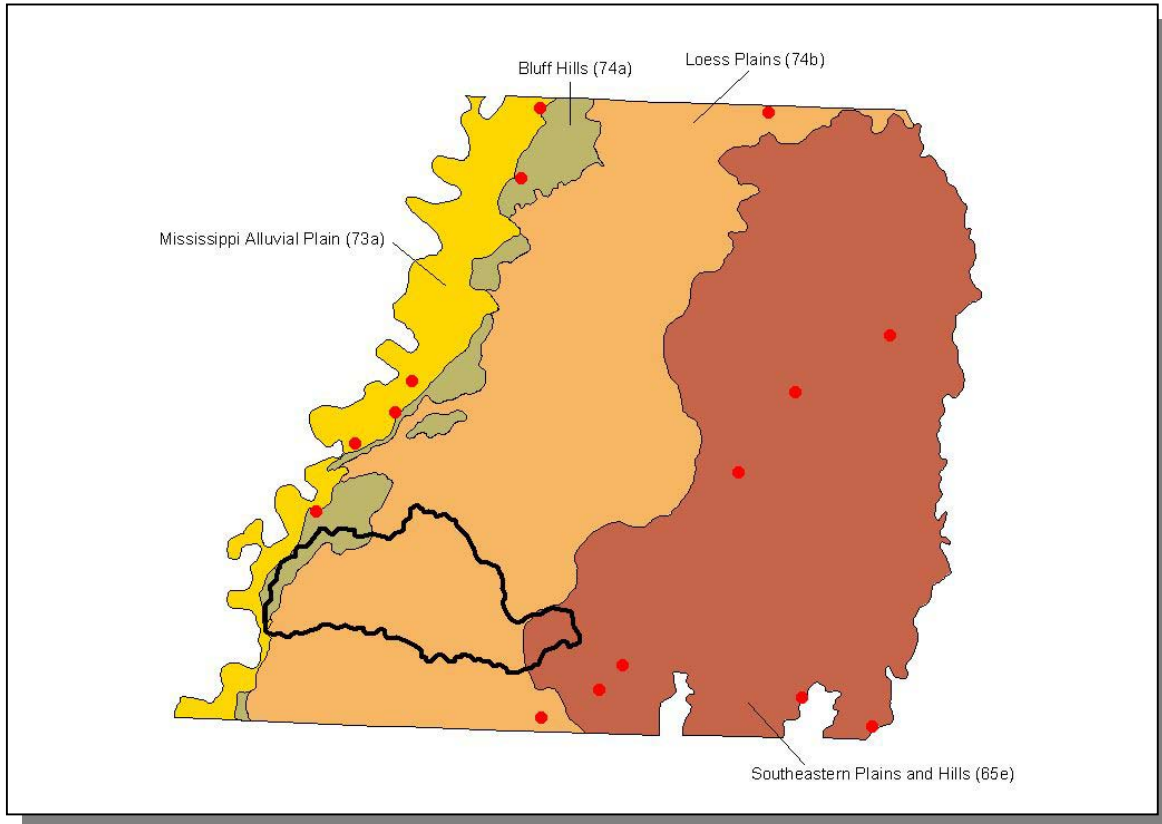
- The Southeastern Plains and Hills (65e) contain several north-south trending bands of sand and clay formations. Tertiary-age sand, clay, and lignite are to the west, and Cretaceous-age fine sand, fossiliferous micaceous sand, and silty clays are to the east. With elevations reaching over 650 feet, and more rolling topography and more relief than the Loess Plains (74b) to the west, streams have increased gradient, generally sandy substrates, and distinctive faunal characteristics for west Tennessee. The natural vegetation type is oak-hickory forest, grading into oak-hickory-pine to the south.
- The Northern Mississippi Alluvial Plain (73a) within Tennessee is a relatively flat region of Quaternary alluvial deposits of sand, silt, clay, and gravel. It is bounded distinctly on the east by the Bluff Hills (74a), and on the west by the Mississippi River. Average elevations are 200-300 feet with little relief. Most of the region is in cropland, with some areas of deciduous forest. Soybeans, cotton, corn, sorghum, and vegetables are the main crops. The natural vegetation consists of Southern floodplain forest (oak, tupelo, bald cypress). The two main distinctions in the Tennessee portion of the ecoregion are between areas of loamy, silty, and sandy soils with better drainage, and areas of more clayey soils of poor drainage that may contain wooded swamp-land and oxbow lakes. Waterfowl, raptors, and migratory songbirds are relatively abundant in the region.
- The Bluff Hills (74a) consist of sand, clay, silt, and lignite, and are capped by loess greater than 60 feet deep. The disjunct region in Tennessee encompasses those thick loess areas that are generally the steepest, most dissected, and forested. The carved loess has a mosaic of microenvironments, including dry slopes and ridges, moist slopes, ravines, bottomland areas, and small cypress swamps. While oak-hickory is the general forest type, some of the undisturbed bluff vegetation is rich in mesophytes, such as beech and sugar maple, with similarities to hardwood forests of eastern Tennessee. Smaller streams of the Bluff Hills have localized reaches of increased gradient and small areas of gravel substrate that create aquatic habitats that are distinct from those of the Loess Plains (74b) to the east. Unique, isolated fish assemblages more typical of upland habitats can be found in these stream reaches. Gravels are also exposed in places at the base of the bluffs.

- The Loess Plains (74b) are gently rolling, irregular plains, 250-500 feet in elevation, with loess up to 50 feet thick. The region is a productive agricultural area of soybeans, cotton, corn, milo, and sorghum crops, along with livestock and poultry. Soil erosion can be a problem on the steeper, upland Alfisol soils; bottom soils are mostly silty Entisols. Oak-hickory and southern floodplain forests are the natural vegetation types, although most of the forest cover has been removed for cropland. Some less-disturbed bottomland forest and cypress-gum swamp habitats still remain. Several large river systems with wide floodplains, the Obion, Forked Deer, Hatchie, Loosahatchie, and Wolf, cross the region. Streams are low-gradient and murky with silt and sand bottoms, and most have been channelized.



**Figure 2-8. Level IV Ecoregions in the Loosahatchie River Watershed.** Locations of Mason, Millington, and Somerville are shown for reference.

Each Level IV Ecoregion has at least one reference stream associated with it. A reference stream represents a least impacted condition and may not be representative of a pristine condition.



**Figure 2-9. Ecoregion Monitoring Sites in Level IV Ecoregions 65e, 73a, 74a, and 74b.** The Loosahatchie River Watershed is shown for reference. More information is provided in Loosahatchie- Appendix II.

## 2.6. NATURAL RESOURCES.

**2.6.A. Rare Plants and Animals.** The Heritage Program in the TDEC Division of Natural Heritage maintains a database of rare species that is shared by partners at The Nature Conservancy, Tennessee Wildlife Resources Agency, the US Fish and Wildlife Service, and the Tennessee Valley Authority. The information is used to: 1) track the occurrence of rare species in order to accomplish the goals of site conservation planning and protection of biological diversity, 2) identify the need for, and status of, recovery plans, and 3) conduct environmental reviews in compliance with the federal Endangered Species Act.

GROUPING	NUMBER OF RARE SPECIES
Crustaceans	0
Insects	0
Mussels	0
Snails	0
Amphibians	1
Birds	3
Fish	1
Mammals	4
Reptiles	2
Plants	6
<b>Total</b>	<b>17</b>

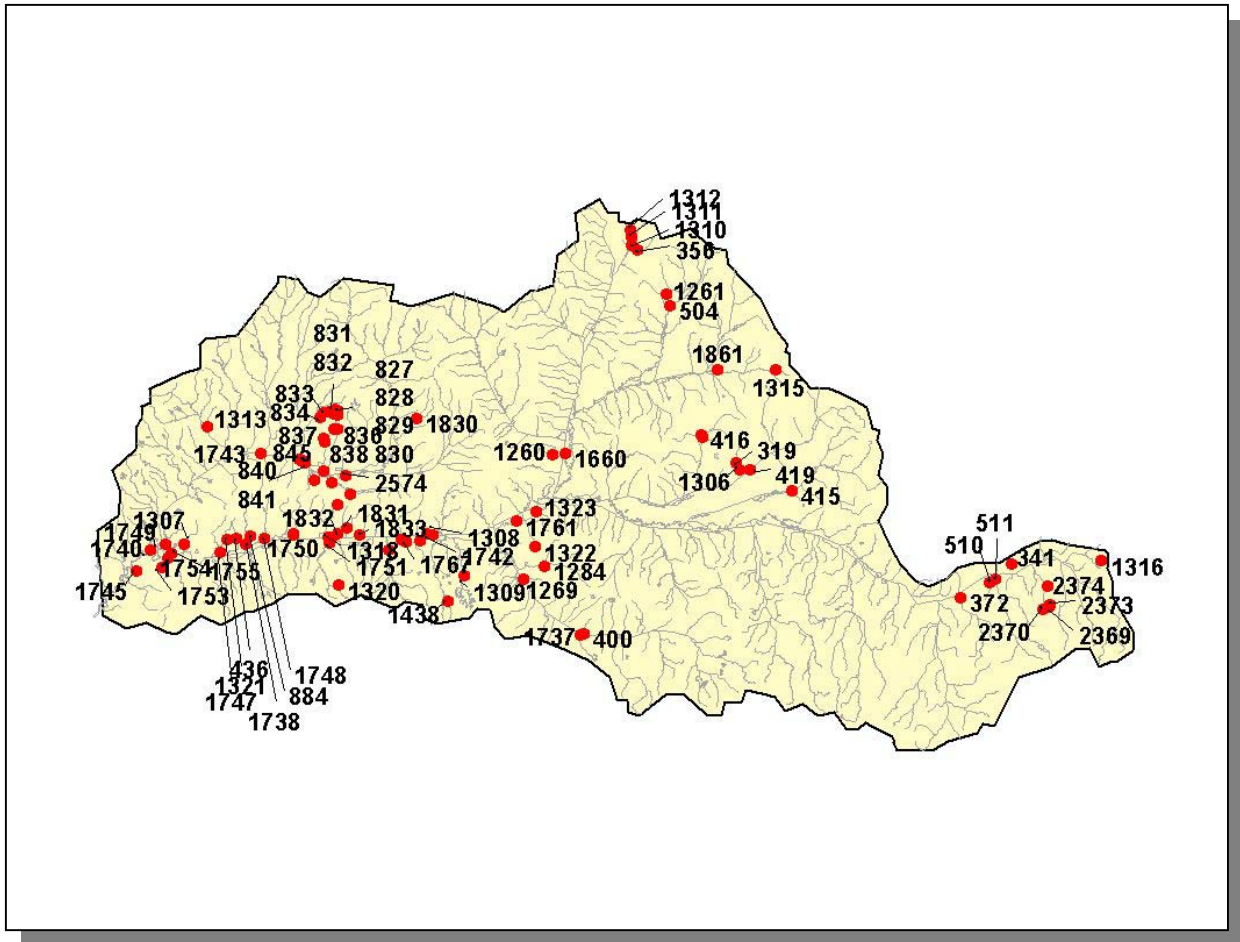
**Table 2-3. There are 17 Rare Plant and Animal Species in the Loosahatchie River Watershed.**

In the Loosahatchie River Watershed, there is one rare fish species.

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
<i>Noturus stigmosus</i>	Northern madtom	MC	D

**Table 2-4. Rare Aquatic Species in the Loosahatchie River Watershed.** Federal Status: E, Listed Endangered by the U.S. Fish and Wildlife Service. State Status: E, Listed Endangered by the Tennessee Wildlife Resources Agency; D, Deemed in Need of Management by the Tennessee Wildlife Resources Agency; MC, Management Concern for the U.S. Fish and Wildlife Service. More information may be found at <http://www.state.tn.us/environment/nh/tnanimal.html>.

**2.6.B. Wetlands.** The Division of Natural Heritage maintains a database of wetland records in Tennessee. These records are a compilation of field data from wetland sites inventoried by various state and federal agencies. Maintaining this database is part of Tennessee's Wetland Strategy, which is described at <http://www.state.tn.us/environment/epo/wetlands/strategy.zip>.



**Figure 2-10. Location of Wetland Sites in TDEC Division of Natural Heritage Database in Loosahatchie River Watershed.** This map represents an incomplete inventory and should not be considered a dependable indicator of the presence of wetlands in the watershed. More information is provided in Loosahatchie-Appendix II.

## **2.7. CULTURAL RESOURCES.**

**2.7.A. Interpretive Areas.** Some sites representative of the cultural heritage are under state or federal protection:

- Meeman-Shelby Forest State park and Wildlife Management Area, a 13,467 acre park with a bottomland hardwood forest of large oak, cypress, and tupelo. The park contains 2 lakes and miles of hiking trails. Deer, turkey, and 200 species of birds are abundant.

In addition, many local interpretive areas are common, most notably, Aycock City park in Millington and Munford City Park in Munford.

## **2.8. TENNESSEE RIVERS ASSESSMENT PROJECT.**

The Tennessee Rivers Assessment is part of a national program operating under the guidance of the National Park Service's Rivers and Trails Conservation Assistance Program. The Assessment is an inventory of river resources, and should not be confused with "Assessment" as defined by the Environmental Protection Agency. A more complete description can be found in the Tennessee Rivers Assessment Summary Report, which is available from the Department of Environment and Conservation and on the web at:

<http://www.state.tn.us/environment/wpc/publications/riv/>

STREAM	NSQ	RB	RF	STREAM	NSQ	RB	RF
Bear Creek	4			Jokes Creek	3		
Beaver Creek Canal	4			Laurel Creek Drainage Canal	4		
Bennett's Creek	3			Little Cypress Creek Canal	4		
Big Creek Drainage Canal	4			Loosahatchie River	3	2,3	1
Black Ankle Creek	3			Loosahatchie River Drainage Canal			
Casper Creek	4			Middle Fork Beaver Creek Canal	4		
Clear Creek Canal	4			North Fork Creek			
Cole Creek	4			River Draianage Canal	4		
Crooked Creek Drainage Canal	3			Royster Creek	4		
Davis Jones Creek	3			Treadville Creek	3		
East Fork Beaver Creek Canal	2			West Beaver Creek Canal	4		

**Table 2-5. Stream Scoring from the Tennessee Rivers Assessment Project.**

Categories: NSQ, Natural and Scenic Qualities  
RB, Recreational Boating  
RF, Recreational Fishing

Scores: 1. Statewide or greater Significance; Excellent Fishery  
2. Regional Significance; Good Fishery  
3. Local Significance; Fair Fishery  
4. Not a significant Resource; Not Assessed